

A study on information skills in Portugal: Information Literacy and the European Higher Education Area (some global results)

Un estudio sobre las competencias de información en Portugal: Literacia Informacional y el Espacio Europeo de Educación Superior (algunos resultados globales)

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Abstract

At the dawn of the 21st century, Portugal faces substantial social challenges. An expanding and increasingly complex Information Era requires citizens who are prepared and capable of facing the challenge of a competitive and globalized economy, where the use of and access to information and communication technologies assume a dominant position. The tasks of attending to the demands of this new model of social relationships have highlighted the absence of a consolidated social answer. Despite the fact that Portugal has been showing indicators of significant increases of digital inclusion, a digital divide is still present and difficult to overcome, because the inclusion of citizens regarding access to and the use of ICT is not proportional to the development of cognitive competences and abilities, as well as a critical evaluation, selection and use of information.

In Portugal, only in the 1980s was it possible to initiate the implementation of a network of Public Libraries, which represents a serious delay in facing the challenging situation described earlier.

This paper presents the results of a research project, supported by the FCT, which assess the level of information skills of Portuguese students in Higher and Secondary Education. The assessment intends to evaluate the level of preparation presented by the students to face not only the challenges of the “Network Society” but also the incoming changes of a European Higher Education Area.

Keywords: information literacy; information science; education; Portugal

1. Introduction

The *eLit.pt* is a research project, supported by the Foundation for Science and Technology (FST), that correlates two key factors that define the current European educational system: the European Higher Education Area (EHEA) and Information Literacy (IL). As we can see in projects such as Tuning, IL is wholly part of the EHEA, yet not entirely as the result of the Information Era requirements. What it actually expresses is a reform process that encompasses educational structures and contents, agents, roles, profiles and skills, in a dynamic context that combines knowledge, understanding, skills and abilities.

What follows is an example of this change as defined by the American Association of School Librarians Standards: "Information literacy has progressed from the simple definition of using reference resources to find information. Multiple literacies, including digital, visual, textual, and technological, have now joined information literacy as crucial skills for this century" (American Association of School Librarians Standards for the 21st-Century Learner, 2008).

Although the IL concept emerged in the 1970s, its effective development is related to the expansion of information technologies and the development of

Information Era. In the 1990s, several countries set out to reorganize their educational systems. In 1994, the USA defined their educational goals – *National Education Goals* – and proved that IL is a key factor within the Information Era. During this period, some European countries, such as Finland and the United Kingdom, developed similar actions.

Information Literacy is a core issue for both governments and professional, cultural, organizational and educational institutions. Organizations such as the UNESCO, the OECD and the European Union have already shown their interest in this topic. In the European context, several projects have been developed, such as DEDICATE (Distance Education Information Course Through nEtworks), EDUCATE (EnD User Courses in Information Access through Communication Technology), VERITY (Virtual and Electronic Resources for Information Skills Training for Young People), to mention but a few.

2. Epistemological and Conceptual Background

The *eLit.pt* project falls within the specific field of Information Science (IS) set within its immediate and natural interdisciplinary “niche”, in other words, in Information and Communication Sciences.

Information is the object construed by Information Science as the motive and target of the entire research. It is a polysemantic and transversal concept much in want of timely explanations as to its scientific use.

The working definition of information, in Information Science, is defined as follows: it is a structured set of codified mental and emotional representations (signs and symbols), modelled with/through social interaction, able to be recorded on any information storage medium (paper, film, magnetic tape, compact disc, etc.) and, therefore, communicated in an asynchronous and multidirectional way (Silva, 2006). This definition helps us circumscribe the study object and to specify exactly the internal nature of the IS approach, thus contributing towards a clearer statement: we are not dealing with thermodynamic, mathematical, biological or computer information, rather the information that Luciano Floridi (2004) defines as semantic, formed by signs and symbols, produced in a human and social context, materialized into various types of media, to be preserved and transmitted. Not everything that is given a shape (information) is susceptible of being received, understood and incorporated by an individual, who reacts by info-communicating again, yet communication interaction is clearly enhanced in the act of informing (expressing ideas, facts, etc., through signs and symbols).

Information Science, understood as an applied social science, researches problems, topics and cases related to the noticeable and cognoscible info-communicational phenomenon, by confirming, or not, the properties inherent to the origin of the flow, of the organization and information behaviours (origin, collection, organization, storage, retrieval, interpretation, transmission, transformation and use of information) (Silva, 2006: 140-141). Two major areas emerge as the study object or field within IS, among which we find, obviously, Information Behaviour, defined as a person's or a group's mode of being or of reacting in a specific situation and context, driven by induced or spontaneous needs, with exclusive regard to the production/issuance, reception, memorization/custody, reproduction and

dissemination of information (Silva, 2006: 142-143).

This definition is important in that it maps out the space in which we inscribe research works on Information Literacy (IL), assembling the skills and the selective and synthesizing ability in the search for and use of information (Silva, 2006: 154). Inspired by the definition put forward by the *American Library Association* (ALA, 2004), Gustavo Cardoso proposes that the IL be interpreted as *um conjunto de capacidades requeridas aos indivíduos no sentido de reconhecerem quando uma informação é necessária e de possuírem a capacidade de a localizar, avaliar e utilizar eficientemente* [*"A set of skills the individuals require to recognize when the information is needed and to have the ability to locate, appraise and use it effectively"*] (Cardoso, 2006: 401).

The line of research of the *eLit.pt* is thus justified and delineated by the pressing need to determine the type of learned skills, as well as the spontaneous or induced needs throughout the schooling process in terms of information research, reproduction/citation, interiorization and communication. This requisite involves a direct and fruitful dialogue with Education Sciences, and enables the development of research within IS.

We cannot forget, however, that the IL concept reached Librarianship and the universe of School and University Libraries from the vocational training and education fields, closely related to the English language (*literacy* means learning to read and write and *literacy* means cognitive skills that enable us to interpret and understand what we read, write, etc.). The basic meaning given to the key skills (learning to read, write and count) still exists nowadays, even when we have to distinguish the more mature cognitive-emotional and versatile skill, capable of appraising, choosing and use the different types of information available in a constructive way.

We need to take into consideration the fact that the assimilation of the concept within the training and cultural practices of librarians has since the 1980s led to the preparation of standards so that Library users (students) can acquire good practices in the search, use and citation of sources looked up and found within such spaces typical of the school environment in which they conduct their activities. These standards and the underlying understanding of IL within Librarianship have outlined a series of guiding ideas on the role of the librarian that are today still in force within Universities and Schools (here through the figure of the librarian teacher). Such ideas range from the basic and simple instructions, for instance the reading of catalogues and the classification signals (for e.g., CDU), the books and open access periodicals, or the correct steps needed to search a bibliographical database, to stimulating the appraisal, selection and critical use of available sources.

Literacy within Librarianship has thus acquired a bias feature much linked to the induction of skills through the binomial teaching-learning, which research conducted under IS should be able to understand and see the result of such efforts in "training towards information literacy" in people, groups and in the educational system.

We have to pinpoint the following as being the more specific objectives of the *eLit.pt* research project in IS:

- determine the existence of IL as we have previously defined it;

- check whether IL is already visible at the end of Secondary Education, and whether “training for IL” has taken place throughout that education level to introduce good practices in the search, organization, citation and use of information;
- determine possible contrasts between IL levels within Secondary Education and half way through Higher Education (University and Polytechnic);
- Situate IL through different school contexts (Secondary and Higher Education - University and Polytechnics) within the geographical and socioeconomic asymmetries in mainland Portugal;
- derive from the school context and the IL taking place therein to determine other overlapping or complementary contexts in the process of consolidating literacy among Portuguese students;
- evaluate the effort developed so far through the IL standards, and to what extent it is insufficient or even useless to construct a true and interiorized IL profile in the formal education process in the Information Era and under the growing and unpredictable impact of ICT.

We have to admit that the *eLit.pt* was designed with the intent of creating an explanatory (see Annex 1) and, if possible, interventive model to help “map” the state of IL in the Portuguese education system, and to propose integrated and interdisciplinary measures and programmes likely to provide for the expansion of skills and intellectual and civic performance to the student population.

2.1. Objectives

To develop an IL project in Portugal, we had to take the national and international environment into consideration. In the first case, and in order to ascertain the level of IL implementation, we analyzed and studied the production of bibliography in Portuguese in this field. We were thus able to distinguish two crucial aspects: first of all, that the topic was still in a very early stage and, secondly, that there were no other similar projects in Portugal or that had at least the same approach and objectives. At international level, we found an extensive production of bibliography, especially between the mid 1990s and the end of the 2000s. In 2009, a report on a project carried out in the USA was disseminated, entitled *How College Students Seek Information in the Digital Age* (Head; Eisenberg, 2009), the findings of which are closely related to the topics which we sought to summarize, in particular the use of Libraries.

The *eLit.pt* aims for national coverage and attempts to interconnect outputs and inputs. The main aim of this study is to analyze the levels of information skills of Portuguese students in Higher Education. The final intention is to understand how these students see the EHEA requirements, and still grasp education as a system, and the need to connect the analysis with the previous level - Secondary Education.

The *eLit.pt* project can be split into two major phases: the diagnosis and the delineation of strategies. The final aim is to define a strategic plan to develop information skills so that Portuguese Universities can easily adapt to the EHEA and to the Information Era. However, our aim is also to raise the awareness of political and academic authorities to the IL issue.

2.2. Methodology

Our approach was based on establishing sample segments and stratification, and for this five selection criteria were adopted, the implementation of which resulted in a sample comprising the following:

- a) the cities of Bragança, Vila Real, Porto, Covilhã, Castelo-Branco, Coimbra, Lisbon, Évora and Faro;
- b) 11 secondary schools, to cover all the study areas with a significant number of students;
- c) in the scope of the Secondary education, the areas of Sciences and Technologies, Socio-Economic Sciences, Social and Human Sciences and Visual Arts;
- d) the Universities of Porto, Trás-os-Montes e Alto Douro, Coimbra, Beira Interior, Évora, Lisbon / New University of Lisbon / Lisbon Technical University and the University of Algarve;
- e) the Polytechnic Institutes of Porto, Bragança, Castelo Branco, Coimbra and Lisbon;
- f) in the scope of the Universities, the degrees in Architecture, Biochemistry, Civil Engineering, Management, Languages and Literatures and Psychology (common to all the Universities);
- g) in the scope of the Polytechnic Institutes, Civil Engineering, Management and Nursing.

The questionnaires were handed to all the students, in all segments, to obtain at least a minimum number of 50 respondents.

The method used implied two types of approaches: a qualitative and a quantitative approach.

The qualitative approach (with interviews to the focus groups) provided us with valuable information on the information behaviour, expectations, needs and use of information. The indicators resulting from the qualitative approach were later used to delineate a questionnaire model.

During the first phase, the interview script was administered to a small number of students from Secondary Schools and from the University of Porto. It consisted of 41 questions, split into four main groups: Needs; Research (and research assessment); Use (and assessment of findings and respective application) and Ethics. Three focus groups were interviewed: two in the 12th year, from the Rodrigues de Freitas Secondary School; a group formed by 8 students from the Aurélia de Sousa Secondary School. The university focus group consisted of 8 students from the Faculty of Arts of the University of Porto.

After we analyzed the results of the qualitative phase, we prepared a preliminary questionnaire to be administered, on a pilot basis, to 28 students in the 12th year from Rodrigues de Freitas Secondary School and to 19 students in the 2nd year of a course at the Faculty of Arts of the University of Porto. The answers obtained were processed using the SPSS 15.0 software. Based on these results, the final version of the questionnaire was prepared, which came to include 54 questions structures into four main groups:

- Basic Group: includes the school and family contexts, seen as the space where students develop their information behaviour structure, conveying a way of

dealing with IL. As this is a space formed by material, technological and symbolic elements (the institutional dimension of an entity, roles and status of players), this school context includes the premises of the school/university (the actual building, the technological structure and the institution/school) plus the roles and social status of the respective players (teachers, students, etc.).

- Functional Group: includes the mediating role of institutions such as the library and the school.
- Transversal Group: includes all the issues on how students correlate and use diverse information. For example, access to information, assessment of information and its use.
- Introspective Group: internal mechanism (motivation) linked to information requirements.

This questionnaire was administered to the selected cohort and, similarly to the focus group, the answers obtained were processed using the SPSS 15.0 software. We then analyzed the results (near completion) and validated the theoretical model prepared (see Annex 1).

3. Results

The results shown, which for the purpose of this paper do not include those on the teaching/learning process, were obtained through the application of the questionnaires to 955 students from 11 Secondary Education (SecEdu) schools and to 2,271 students from 13 Higher Education (HiEdu) institutions attending the 1st Bologna cycle (3rd and 4th semesters), raising the total to 3.226 respondents. In terms of geography, the cohorts covered the districts of Bragança, Vila Real, Porto, Guarda, Coimbra, Castelo Branco, Lisboa, Évora and Faro.

The female gender dominates (56.8% in SecEdu and 63.7% in HiEdu), and students in SecEdu ranged between 16 and 19 years, 61.8% of which falling within the 17-year age bracket (age average 17.26 years), whilst in HiEdu students are between 18 and 29 years, with 76.4% of respondents around 19, 20 and 21 years, the average being 20.35 years.

As we mentioned before, the representation of areas/courses attended by students was one of the most relevant criteria for the construction of the cohort; nonetheless, the Sciences and Technology area clearly dominated (60.9%), followed by Social Sciences (18.3%), the areas remaining standing below 10%, whilst in HiEdu the tendency is widely distributed, with Nursing and Psychology courses showing the highest percentages, 17.7% and 15.3% respectively. The representation of Polytechnic students within the group of students in HiEdu is around 39% of the total number of respondents. Furthermore, the majority of students in HiEdu confirm that they are able to dedicate themselves wholly to the course they are enrolled in. Working students total only 8.4% of this universe.

Several trends can be drawn from the general information on the social background of the respondents. With regard to the SecEdu students, they seem to show a profile typical of urban populations, with 41.9% of students' mothers attending a Higher Education course, followed by 23.6% with Secondary Education, while 37.8% of students' fathers have a Higher Education course, and 24.4% have completed Secondary Education. Only 12.6% of students receive social education

benefits. In Higher Education, there is a clear divide in the social background of students in the University and those in Polytechnic Institutes. The latter resort more to social benefits (43% against 2.4% of students in University), their mothers showing a lower level of education (in the Polytechnic schools, 26.6% have completed the 1st Cycle of Primary Education (4 years), in comparison to the 27.9% with a University course), and their fathers showing the same tendency (25.8% in the Polytechnic Institutes with the 1st cycle of Primary Education, compared to the 24.4% with a University degree for University students). These students probably attended schools with fewer resources, as they form a group which during their 1st Cycle studies did not have much experience of School Libraries. The questionnaire also shows us that most respondents attending HiEdu already have a greater amount of schooling than their parents.

If we look at the general information provided on the existence of computers and Internet access in the life of these students, we see that about 99% of respondents have a computer at home (61.3 % of SecEdu students and 62.8% of the HiEdu have between 2 and 3 computers). The number of computers per household is greater in University than in Polytechnic Education (33.4% in University having more than 2 computers, against 25.2% in Polytechnic Institutions), which suggests that the university student uses the computer more.

The majority of households have access to the Internet (about 81% of respondents), with University students dominating (only 7.2% have no Internet access, while Polytechnic students total 11.9%). The frequency of access is likewise different: university students access it more often. When we compare HiEdu and SecEdu in global terms, HiEdu shows a more frequent access (75.5% against 69.3%), already showing distinct behaviours namely with regard to the place where such access takes place. In both cases, the first option is accessing the Internet from home (over 90%), whereas in the educational context 57.4% of HiEdu students say that they do it at the Faculty and only 20.1% of SecEdu students do it at their respective schools, although they know schools have the necessary resources. We must highlight the fact that 94.3% of SecEdu students are ICT trained, whereas only 53% of HiEdu students have had that chance. In fact, we are now faced with a new variable which is inseparable from the reforms carried out in the education system and in the gradual inclusion of new subjects/contents that affects both student groups (SecEdu and HiEdu - in 2001-2002 respectively in the 5th year and in 7th year of schooling).

We can also see that the reason for the uneven distribution of resources between University Education and Polytechnic Education is due to a similarly uneven geographical distribution. The highest access rates are, therefore, found in the larger cities.

Generally speaking, and despite the good technological equipment, the social divide and asymmetries in accessing the Internet and in the use of information and communication technologies, as well as in information resources, seem to show an “information divide” together with the already identified “digital divide”. If we are to use the IL concept, these data seem to suggest that something more substantial must be done within the school context with regard to the cognitive skills, so that such a “divide” decreases or even disappears. Nonetheless, the socioeconomic and

family context is not enough to bear special relevance on the information behaviour, and the results show the influence of variables from the school context itself.

In fact, if on the one hand the school offers SecEdu students training and provides access to services and resources, it is not their favourite place to use them, not even when they have to do their school work.

As there are many subjects requiring assignments, SecEdu students once again choose their home to do them (96.6%), suggesting a further differentiation compared to HiEdu students who, despite preferring their home (81.1%), reveal an intensive use of both the Faculty space/resources (64.6%) and the Faculty Library (42.1%), which offers specialized services. HiEdu students have to prepare assignments for the various subjects in their course area, and therefore need to access the Internet and face more complex problems related to such access and information use that have to be solved. Faculty resources offered to students are seen as very important; they are normally more specific, in greater quantity and quality (Cf. Gráf. 11).

With regard to choosing the Public Library, we realize that students from both groups hardly use it, which alone raises several doubts since we cannot disregard the investment made in the Public Reading Network from the second half of the 1980s on, and the role expected for these libraries in terms of their relation with School Libraries. Furthermore, and contrary to HiEdu data, only 19.9% of SecEdu students mention the School Library as the place where they do their work; this figure drops to 7.8% when we address the issue of the Public Library.

We are, thus, in the presence of a new variable materialized in the information services operating in an educational context, School Library (SL) and Faculty Library (FL), and also the Public Library (PL) which, in principle, would interact with the other two libraries, particularly with the School Library. If it is true that Portugal is equipped with a good public library network, as well as with school and university libraries, the results shown below confirm that the field situation does not meet the expectations for their intended use.

Regarding the SL/FL, and whilst the majority of respondents said they had already visited a library, about 22.4% of SecEdu and 15.9% of HiEdu students have never visited such facilities since the 1st cycle of primary school, with higher attendance rate in the 3rd cycle (69.7% and 60.9% respectively), followed by the 2nd cycle (47.7% and 42.3%), with SecEdu students participating the most.

In terms of regular use, the tendency changes: only a few of those who admitted having visited a library do it on a regular basis, and there is a clear difference in behaviour between the SecEdu student (47.7% hardly uses it) and the HiEdu student (26.7% admits visiting it several times a week), thus confirming the behaviour singled out when selecting the place for doing school work.

As to the use of available resources at the SL/FL (catalogue, open access, digital library, e-catalogue and databases), we can see that in SecEdu, and with the exception of open access (25.3% have never used it), the percentage of non-use of available resources always tops 50%. In SecEdu, although there is a clear tendency towards a variety of resources, their use is minimal: the option “never” toppled 33% (52% for the “catalogue”) and even for the most used resource - open access - only 23.5% of respondents admit using it on a regular basis, and 17.9% of students have

never used it, which goes to show that students seek the space rather than the services/resources offered.

With regard to the group of questions on the use of the PL, what immediately stands out is the percentage of non-respondents (in both SecEdu and HiEdu), totalling more than 40% of respondents. About 27.5 % of SecEdu students are not aware of any PL within their residence area, whereas 82.2% of HiEdu students know they are available.

Of the 56.6% of SecEdu respondents who answered the question on how frequently they visit the PL, 40.1% state that they use the library to study and 44.5% to research and access information. In HiEdu, 47.8% use the library to study and 53.5% to research and access information, showing a possible direct relation between greater demand and need and the student's performance level. Available resources are mostly identified as being books, newspapers and magazines.

When asked about the frequency of use of available resources at the PL (catalogue, open access, digital library, e-catalogue and databases), about 30% did not reply. We can see that in SecEdu, and with the exception of open access (although 46.3% say they have never used it), the percentage of non-use of available resources always tops 50%. In HiEdu, about 50% have never used the catalogue (e-catalogue or cards), the digital library and the databases. In the case of the most used resource – open access – only 12% use it on a regular basis and 31.2% have never used it.

Paradoxically, 90.2% of SecEdu students and 85% of HiEdu students mentioned they had no problems in using these resources. Does this show that students are not aware that these resources exist, and that they seek an easier and apparently friendlier way out, associated with poor critical power? Perhaps this behaviour is linked to undeveloped IL skills.

The divide which apparently seems to exist between students and libraries gains a strong foothold when we analyze the use of search engines and Internet resources. Google is clearly the favourite search engine, with nearly 100% of respondents using it frequently or very frequently. As to the use of Internet resources, Youtube, Hi5 and Messenger dominate, as well as information downloads, in short, the "leisure Internet". The information resource Wikipedia is clearly preferred to library websites, to *B-on* (Online Reference Library) and to digital libraries, which show the lowest numbers in the total group analyzed. This draws our attention to the role of libraries and to the quality of resources and information retrieved by students. ICT training offered to SecEdu students, which we have referred to above, does not seem to have caused major impact at this level, as only 25% of respondents are aware that user training is offered in both the School Library and Faculty Library, which in the wake of this analysis seems to confirm that the role of libraries in the teaching/learning process is not quite significant in terms of IL.

However, training is not limited to these two frameworks, and we have to associate to the analysis herein presented the analysis on the teaching/learning process and the role of the teacher, which we will reveal at a more opportune moment.

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Annexes

Annex 1. *eLit.pt* model

